



## Safety with Lithium Polymer Batteries

A guide to safe use of LiPo batteries, from the British Electric Flight Association.

Despite what a number of people may tell you Lithium Polymer (LiPo) batteries are not fundamentally unsafe, but they need to be treated with more care than NiCd or NiMH. If abused sufficiently LiPo cells can catch fire and this fire can be difficult to extinguish. The following precautions should help you enjoy using LiPo batteries without having a major incident.

### **General precautions:**

- The minimum safe discharge voltage is 2.5V per cell when under load, or 3.0V per cell when not on load.
- When more than 2 cells in series are used, a controller with an adjustable cutout should be used and it should be set at or above 2.5V/cell.
- Only charge LiPo batteries on a charger specifically design for LiPo batteries.
- Always ensure you use the correct charging voltage for the cell count.
- The maximum charge rate should be 1C, eg. 0.7A for a 700 mAh cell. For best charging, low charge rates should be used where possible.
- Check the charge voltage (or cell count) and current a second time.
- Never leave charging LiPo cells unattended (at any charge rate).
- It is best to charge LiPo cells in an open space on a non-flammable surface (such as a brick or quarry tile) and away from flammable materials.
- For long term storage it is recommended that cells are fully charged and then discharged to between 50% and 60% of their capacity.
- Use connectors that can not be short circuited, or use silicon fuel tube to protect exposed connections.
- Have a dry powder fire extinguisher or a bucket of dry sand within reach.

### **If a pack is involved in a crash or is otherwise damaged:**

- Remove the pack from the model.
- Inspect the pack for damage to the wiring or connections.
- If necessary, disassemble the pack and dispose of any damaged cells.

### **Disposal of LiPo batteries:**

Put the pack in a safe open area and connect a moderate resistance across the cell terminals until the cell is completely discharged.

CAUTION: The pack may get extremely hot during the discharge.  
Puncture the plastic envelope and immerse in salt water for several hours.  
Place in your regular rubbish bin.

By Jan Bassett (BEFA)